CLAIMS

1. Zirconium based alloy also containing, by weight, 0.03 to 0.25% in total firstly of iron and secondly at least one of the elements from the group comprising chromium and vanadium, 0.8% to 1.3% by weight of niobium, less than 2000 ppm of tin, 500 to 2000 ppm of oxygen, less than 100 ppm of carbon, 5 to 35 ppm of sulfur and less than 50 ppm of silicon.

2. Sheathing tube for a nuclear fuel rod or guide tube for a nuclear fuel assembly, made from a zirconium based alloy also containing, by weight, 0.03 to 0.25% in total firstly of iron and secondly at least one of the elements from the group comprising chromium and vanadium, 0.8% to 1.3% by weight of niobium, less than 2000 ppm of tin, 500 to 2000 ppm of oxygen, less than 100 ppm of carbon, 5 to 35 ppm of sulfur and less than 50 ppm of silicon, in the re-crystallized state, at least the greater part of the iron being in the form $Zr(Nb,Fe,Cr)_2$ or $Zr(Nb,Fe,V)_2$ and in which the intermetallic compounds are of a size not exceeding 200 nm.

3. Tube as claimed in claim 2, characterized in that the oxygen content is between 1000 and 1600 ppm.

4. Tube as claimed in claim 2 or 3, characterized in that the content of tin is less than 300 ppm.

5. Tube as claimed in claim 2 or 3, characterized in that the content of tin is between 300 and 1500 ppm.

6. Sheet of alloy as claimed in claim 1.

7. Method of manufacturing tubes intended for making all or the external part of a sheathing tube for a

nuclear fuel rod or a guide tube for a nuclear fuel assembly, characterized in that a bar is formed of a zirconium based alloy which also contains, firstly 0.03 to 0.25% in total firstly of iron, secondly, at least one of the elements from the group comprising chromium and vanadium, 0.8 to 1.3% of niobium, less than 2000 ppm of tin, 500 to 2000 ppm of oxygen, less than 100 ppm of carbon, 5 to 35 ppm of sulfur and less than 50 ppm of silicon,

- quenching the bar in water after heating to between 1000° and 1200°C,

- extruding a blank after heating to a temperature of between 600°C and 800°C,

- cold-rolling said blank in at least four passes to obtain a tube, with intermediate heat treatments between 560°C and 620°C, and

- applying a final heat treatment at between 560°C and 620°C, all the heat treatments being applied in an inert atmosphere or under vacuum.

8. Method as claimed in claim 7, characterized in that the alloy contains at most 0.20% of iron.

9. Method as claimed in claim 7, characterized in that the Fe/(Cr+V) ratio is between 0.5 and 30 by weight.

10. Method as claimed in claim 7, characterized in that the Fe/(Cr+V) ratio is at least 0.5 and the content of Fe+Cr+V is at least 0.03%.

11. Method as claimed in any one of claims 7 to 10, characterized in that the oxygen content is between 1000 and 1600 ppm.